



A.D. 1852 N° 250.

S P E C I F I C A T I O N

OF

WILLIAM ARMAND GILBEE.

DISINFECTING PUTRIFIED AND FECAL
MATTERS, AND CONVERTING FECAL
MATTERS INTO MANURE.

L O N D O N :

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A.D. 1852 N° 250.

**Disinfecting Putrified and Fecal Matters, and Con-
verting Fecal Matters into Manure.**

LETTERS PATENT to William Armand Gilbee, of the English and Foreign Patent Office, 4, South Street, Finsbury, in the County of Middlesex, Gentleman, for the Invention of “**A CERTAIN IMPROVED MODE OF DISINFECTING PUTRIFIED AND FECAL MATTERS, AND CONVERTING FECAL MATTERS INTO MANURE; ALSO APPLICABLE TO THE DISINFECTION OF CESSPOOLS, DRAINS, SEWERS, AND OTHER SIMILAR RECEPTACLES.**”—A communication.

Sealed the 31st December 1852, and dated the 6th October 1852.

PROVISIONAL SPECIFICATION left by the said William Armand Gilbee at the Office of the Commissioners of Patents, with his Petition, on the 6th October 1852.

I, **WILLIAM ARMAND GILBEE**, of the English and Foreign Patent
5 Office, 4, South Street, Finsbury, in the County of Middlesex, Gentle-
man, do hereby declare the nature of the said Invention for “**AN
IMPROVED MODE OF DISINFECTING PUTRIFIED AND FECAL MATTERS, AND
CONVERTING FECAL MATTERS INTO MANURE; ALSO APPLICABLE TO THE DIS-**

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INFECTION OF CESSPOOLS, DRAINS, SEWERS, AND OTHER SIMILAR RECEPTACLES,"
to be as follows, that is to say :

In producing a new deodorizing powder, and the mode and machinery employed in the manufacture and in the application of the same.

The fecal and other matters are first partially disinfected, to allow of 5
their being operated upon, and then completely disinfected and converted
into manure suitable for agricultural purposes. The powder is obtained
by the combustion of the detritus of forests, lignites, vegetables, marine
plants, or any ligneous substance, rags, refuse of wool, &c. &c., mixed
in suitable proportions with substances which give them the property of 10
absorbing or decomposing. One of the constituents of the powder
having an absorbing property combines with the fecal and ammoniacal
gases which are disengaged from the solid and liquid excremental
matters. The other decomposing element precipitates the salts con-
tained in urine, renders the water inodorous, and allows the operation 15
of cleansing to be performed at any hour of the day without the slightest
inconvenience.

By reference to the Drawing the apparatus which I employ for
obtaining the powder will be seen, and I will afterwards point out how
it is to be employed, and with what substances it is to be combined. 20

DESCRIPTION.

Figure 1, is a plan or horizontal view of the carbonizing ovens (or
kilns) in which I burn the detritus of forests, &c. Figure 2, is a section
through the line A, A, of Figure 1. Figure 3, is a section through the
line B, B, of Figure 2. Figure 4, is an elevation or end view of the 25
same. *a*, being the upper oven or kiln, on which I effect the combustion
of the vegetable matters ; D, D¹, the boxes called extinguishers, on which
it rests. The section of the interior of these ovens, as seen in the
Drawings, resembles in form an egg standing on one end. The oven *a*,
is supported on wheels travelling on rails *c*, which are laid down along 30
the whole of the upper part of the boxes D, D¹. This oven *a*, is open at
top and bottom ; and two plates arranged one above and the other below
serve to open and shut it at pleasure. The ovens D, D¹, are each pierced
at the upper part with an opening corresponding with that at the bottom

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of the oven *a*, and are likewise shut by means of drawers. The oven *a*, is provided at its sides with apertures E, E, which allow the combustion to be inspected at pleasure. The ovens D, D¹, are provided at the bottom with a door F, by which the contents of each may be taken out.

5 The manner of operating is as follows :—Vegetable matters of any sort intended to be burnt are poured into the upper opening of the oven *a*, until it is two thirds full ; and when the carbonization is complete the lower orifice is to be opened by displacing the drawer, care being first taken to withdraw the door or slide of the lower oven, and all the
10 carbonized matter will be precipitated into the lower oven or box ; the lower opening of the oven *a*, must be shut immediately, by pushing in the drawer. Vegetable matters are also poured into the said oven to fill the second oven or box D, and it is to be pushed along until its lower orifice corresponds with that of the box D¹. The combustion is allowed
15 to proceed in the oven *a*, and the animal matters of any kind which are to be carbonized by heat are put on the hottest part of the box D¹, and the box is shut. Combustion takes place, and the gas produced by the heat penetrates into the pores of the vegetable carbon, which is extinguished ; the door placed below this box is then opened, and the car-
20 bonized matters are taken out and sifted, and the powder produced by this sifting is then ground.

To produce an absorbing powder with this carbonized powder it is necessary to mix it with wool flock.

In order to convert the matters treated by the absorbing powder into
25 manure fit for agricultural purposes, it is necessary to mix them with the decomposing powder of the following composition :—

Molasses from indigenous sugar, or the residue of the manufacture of such ; slacked lime, in powder ; pulverized sulphate of iron or zinc ; pulverized clayish magnesian earth ; and the absorbing powder above
30 described. This mixture produces a powder which has the property of completely decomposing and disinfecting. These powders are employed in the following manner :—

In private houses, by means of an intercepting plate, as shown in the Drawings, Figures 5, and 6, for intercepting bad odours and emanations
35 from water closets, it is applied to the bottom of the opening of the

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principal conduct pipe into the cesspool, and is fixed to the sides. It is provided with a scoop underneath with a range of tube, and contains water, in which the matters fall, shutting instantaneously by their weight the opening. This scoop when half empty, shuts of itself by the weight of a counterpoise, and retains a sufficient quantity of water 5 to receive the dry matters and intercept their exhalations. This hydraulic intercepting apparatus is provided with another pipe containing a quantity of disinfecting powder, which escapes each time the scoop or basin opens, and is renewed by equal quantities.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said William Armand Gilbee in the Great Seal Patent 10 Office, on the 6th April 1853.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, WILLIAM ARMAND GILBEE, of the Patent Office, 4, South Street, Finsbury, in the County of Middlesex, Gentleman, send greeting. 15

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Sixth day of October, in the year of our Lord One thousand eight hundred and fifty-two, in the sixteenth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said William Armand Gilbee, Her especial 20 license that I, the said William Armand Gilbee, my executors, administrators, and assigns, or such others as I, the said William Armand Gilbee, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term of years therein expressed, should and lawfully 25 might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention of "**A CERTAIN IMPROVED MODE OF DISINFECTING PUTRIFIED AND FECAL MATTERS, AND CONVERTING FECAL MATTERS INTO MANURE; ALSO APPLICABLE TO THE DISINFECTION OF CESSPOOLS, DRAINS, SEWERS, AND OTHER 30 SIMILAR RECEPTACLES,**" communicated to me from a foreigner residing abroad, upon the condition (amongst others) that I, the said William Armand Gilbee, by an instrument in writing under my hand and seal,

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should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said
5 Letters Patent.

NOW KNOW YE, that I, the said William Armand Gilbee, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, reference being had to the
10 Drawing hereunto annexed, that is to say :

The Invention communicated to me consists in combining certain animal and vegetable substances, and in apparatus for the production of powders applicable to the disinfection of fecal and other matters ; also applicable to disinfecting drains, sewers, and other similar receptacles, and to converting fecal matters into manure suitable for agricultural purposes. The powders are produced by mixing the products of the combustion of matters, such as the detritus of forests, lignites, vegetables, marine plants, or wood of every kind, rags, refuse of wool, horse hair, or other similar substances, with certain substances capable
15 of giving them the property of absorbing or decomposing. One of the powders serves to absorb the fecal and ammoniacal gases from the solid and liquid fecal matters ; the other for decomposing and precipitating the salts contained in urine, by which treatment the water is rendered iodorous. Then the removal of the fecal matters may be effected at
20 any hour of the day, without inconvenience to the workmen employed, or to the passers by.

My system consists in first disinfecting the fecal matters to permit of their extraction, and afterwards in converting them into manure, in a more complete and expeditious manner than by any of the processes
30 hitherto invented.

I will now proceed to describe the apparatus which I make use of, by preference, for manufacturing the above stated powders ; and I will afterwards describe in what manner and in what proportions they are to be employed, and the substances with which they are to be com-
35 bined.

DESCRIPTION OF THE DRAWING.

In the Drawing, Figure 1, represents a plan or bird's eye view of the carbonizing ovens in which the detritus of forests, or other substances of the above described nature, are to be burnt.

Figure 2, is a section through the line A, A, of Figure 1. 5

Figure 3, is a section through the line B, B, of Figure 2.

Figure 4, an end elevation of the same.

In these Figures, *a*, is the upper furnace, in which I effect the combustion of the vegetable substances ; D, D¹, extinguishing boxes. The furnace *a*, and the boxes D, D¹, on which it is set, are constructed of 10 sheet or cast iron, or of brick covered with sheet iron, or merely secured by means of bands of sheet iron. The interior of the ovens, as seen in Figure 3, of the Drawing, is made in the form of an egg standing on its point. The sides of the furnace *a*, are provided with openings E, E, to inspect the state of combustion ; it is supported on small rollers tra- 15 velling on rails C, which are laid down on all the upper surface of the extinguisher boxes D, D¹. The oven *a*, is open at top and bottom, and two cast iron or strong sheet iron plates, set one at top and the other underneath, placed like slides, serve to open and shut it. The boxes D, D¹, are each provided at their upper parts with an opening corre- 20 sponding with that in the lower part of the furnace *a*, which openings are shut by means of plates, as herein-before described. The lower parts of the boxes D, D¹, are provided with an orifice closing by a door F, serving to withdraw the contents of each of the extinguishing boxes.

The mode of operating is as follows :—I draw back the top plate of 25 the furnace *a*, and fill it full of vegetable matters, which are reduced by their combustion to two thirds of the capacity of the furnace ; the alimentation must be constantly kept up. When the combustion is complete, I draw back the upper door or slide of the box D, and open the lower orifice of the furnace *a*. All the carbonized matter in the 30 furnace *a*, will then be precipitated into the extinguishing box D, after which the oven door must be shut immediately. Fresh vegetable matters are then introduced into the oven *a*, in order to fill the extinguisher box D¹ ; and for that purpose the furnace *a*, is pushed forward

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until its lower orifice corresponds with the upper one of the box D¹, and combustion is allowed to proceed in the oven *a*, as before. I then introduce animal matters upon the lighted coal in the box D, in order to disaggregate them by heat in the proportion of one third of animal
5 matters to two thirds of carbonized vegetable substances, and shut the box D. Combustion takes place directly; and the gases produced penetrate into the pores of the vegetable carbon, which is by that means extinguished. The lower door of the box D, is then opened, and the carbonized animal and vegetable matters are taken out and sifted, the
10 larger parts being reduced to powder by any convenient means. To convert this carbonized powder into an absorbing powder, it is necessary to mix it with wool shearings in the following proportions, that is to say, seventy-five per cent. in weight of carbonized animal and vegetable powder; twenty-five per cent. of wool shearings. To convert
15 fecal or other matters treated by the said absorbing powder into manure fit for agricultural purposes, it is necessary to treat them with the decomposing powder herein-after described, which I compose as follows: I mix two hundred and twenty pounds molasses of sugar, or the residues of the manufacture thereof, two hundred and twenty pounds slacked
20 lime reduced to powder, two hundred and twenty pounds sulphate of iron or zinc pulverized, two hundred and twenty pounds of pulverized clayish magnesian earth, with two hundred and seventy-five pounds of the absorbing powder prepared as herein-before described. The proportion of absorbing powder must be varied according to the nature of
25 the fecal or other matters and the state of the lime; and it is necessary, when the lime is not sufficiently slacked, to continue the supply of absorbing powder until all smell is subsided.

By this mixture I produce a powder combining the properties of absorbing and disinfecting, precipitating the salts from urine, and forming
30 therewith a manure possessing superior fertilizing properties to those of solid fecal matters. These powders are employed in the following manner:—When employed in private houses, I first apply to the waterclosets an intercepting plate, as shewn in Figures 5, and 6, of the Drawing, for intercepting bad odours and emanations therefrom. This
35 plate is applied to the opening into the cesspool, at the lower part of

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the conduct pipe, and is fixed to the sides of the opening in the masonry work of the cesspool, and covered with cement. It is provided with a scoop underneath, with a range of downward tubing about two inches in length, containing about one and three quarters inches deep of water, equivalent to about seven pints. When the matters fall into the scoop 5 their weight causes the instantaneous opening of the scoop, which shuts of itself when half full by means of a counterpoise, the weight of which is in due proportion with its capacity, and it retains a sufficient quantity of water to intercept the exhalations of the solid matters falling therein. This hydraulic intercepting apparatus is provided with a pipe 10 of a smaller diameter than that of the principal conduct pipe, and serves to conduct a quantity of disinfecting powder into the scoop, which is made to escape each time the scoop or basin opens, and is replaced by fresh quantities. I can also apply a third kind of hydraulic intercepting apparatus, which consists of a railed syphon for the reception of the 15 waters or urine fallen upon stones of waterclosets upon the ground floor. The ordinary dimensions of the plate are about sixteen inches long and thirteen inches wide, which dimensions, however, are not invariable, but will depend upon those of the cesspool. The scoop is suspended underneath the plate by means of brass pivots, to which it is 20 fixed by means of pins, without any other recipient but the cesspool. This plate distributes the decomposing powder contained in a recipient on the ground floor in the proportion of about five pints per cubic foot of precipitated matters.

In public establishments drains or sewers, I employ the decomposing 25 powder alone, which is spread by hand in the proportions before stated, and produces the same result. Before the removal of fecal matters, I add to them about twelve per cent. in volume of absorbing powder. The mixture is moved about with care and rendered homogenous throughout, and is then completely disinfected, and forms a powerful 30 manure fit for agricultural purposes.

And having now described the nature of the said Invention communicated to me, and the manner in which the same is to be performed, I would have it understood that I do not confine myself to the precise details or proportions herein described. But what I claim as the 35

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Invention communicated to me is, the combination of agents and apparatus for the production of powders applicable to disinfecting and converting putrified and fecal matters into manure for agricultural purposes ; also applicable for disinfecting cesspools, drains, sewers, and
5 other similar receptacles, as herein-before described and referred to in reference to the Figures of the Drawing.

In witness whereof, I, the said William Armand Gilbee, have hereto set my hand and seal, this First day of April, in the year of our Lord One thousand eight hundred and fifty-three.

W. A. GILBEE. (L.S.)

LONDON :

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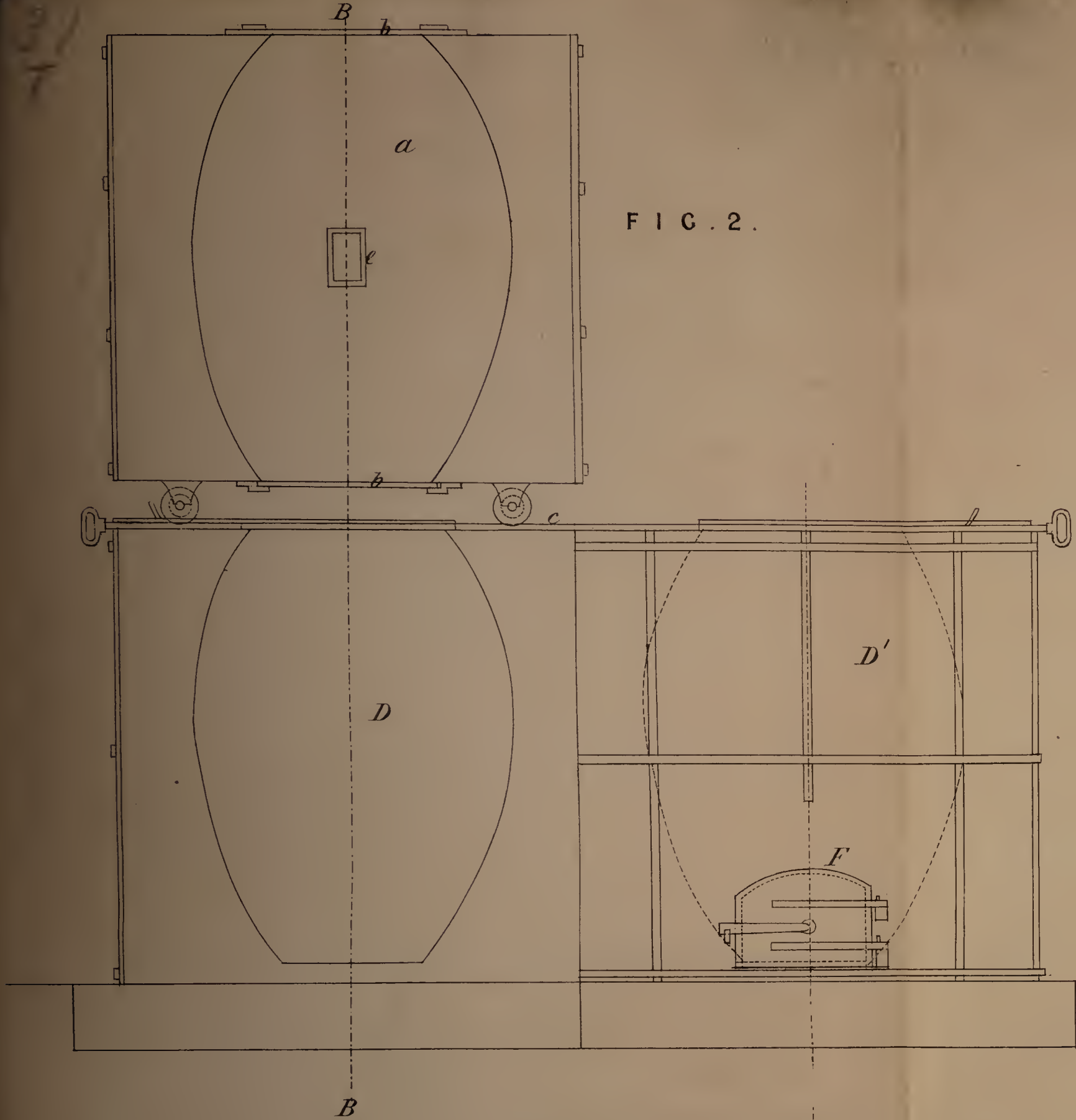


FIG. 1.

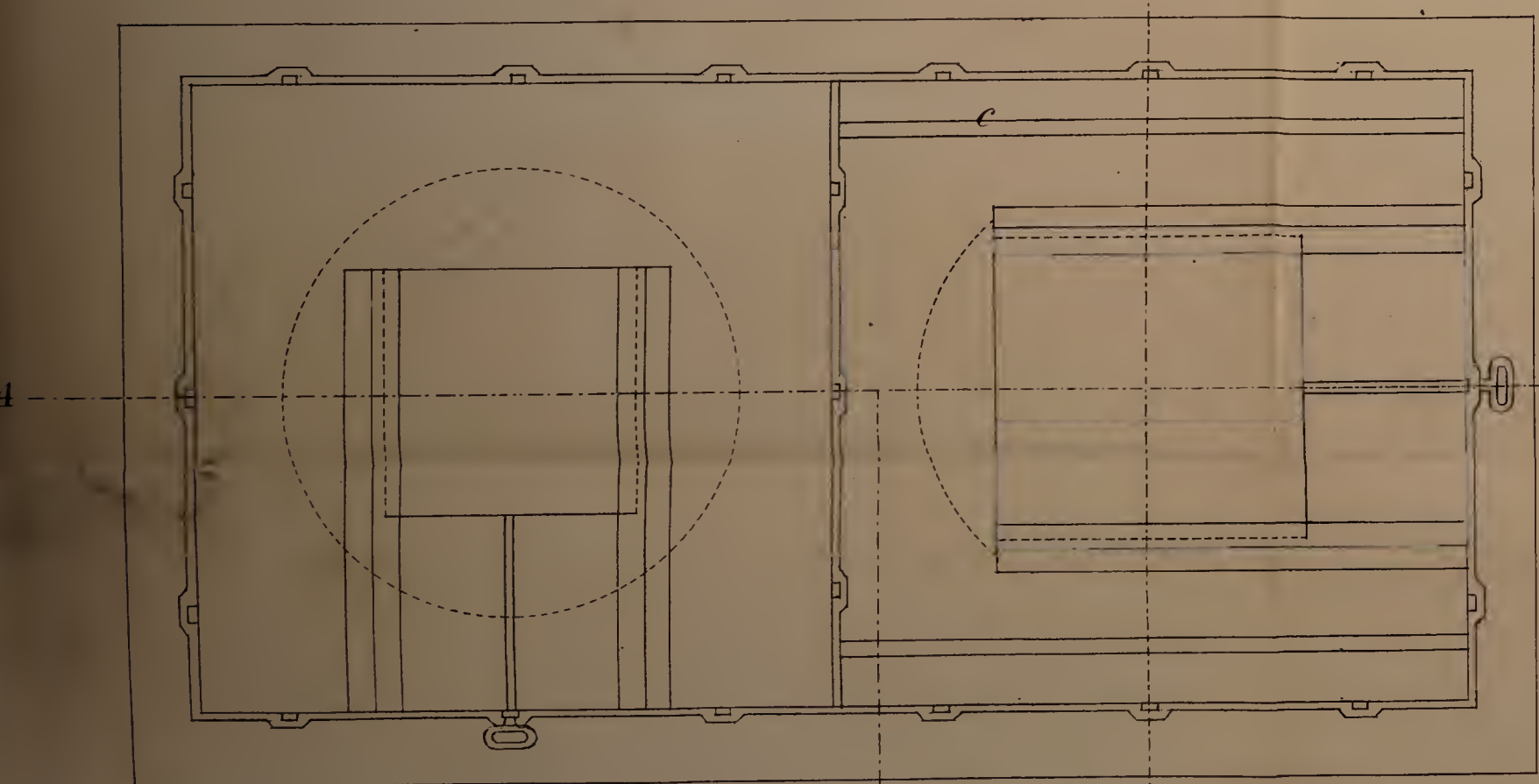


FIG. 3.

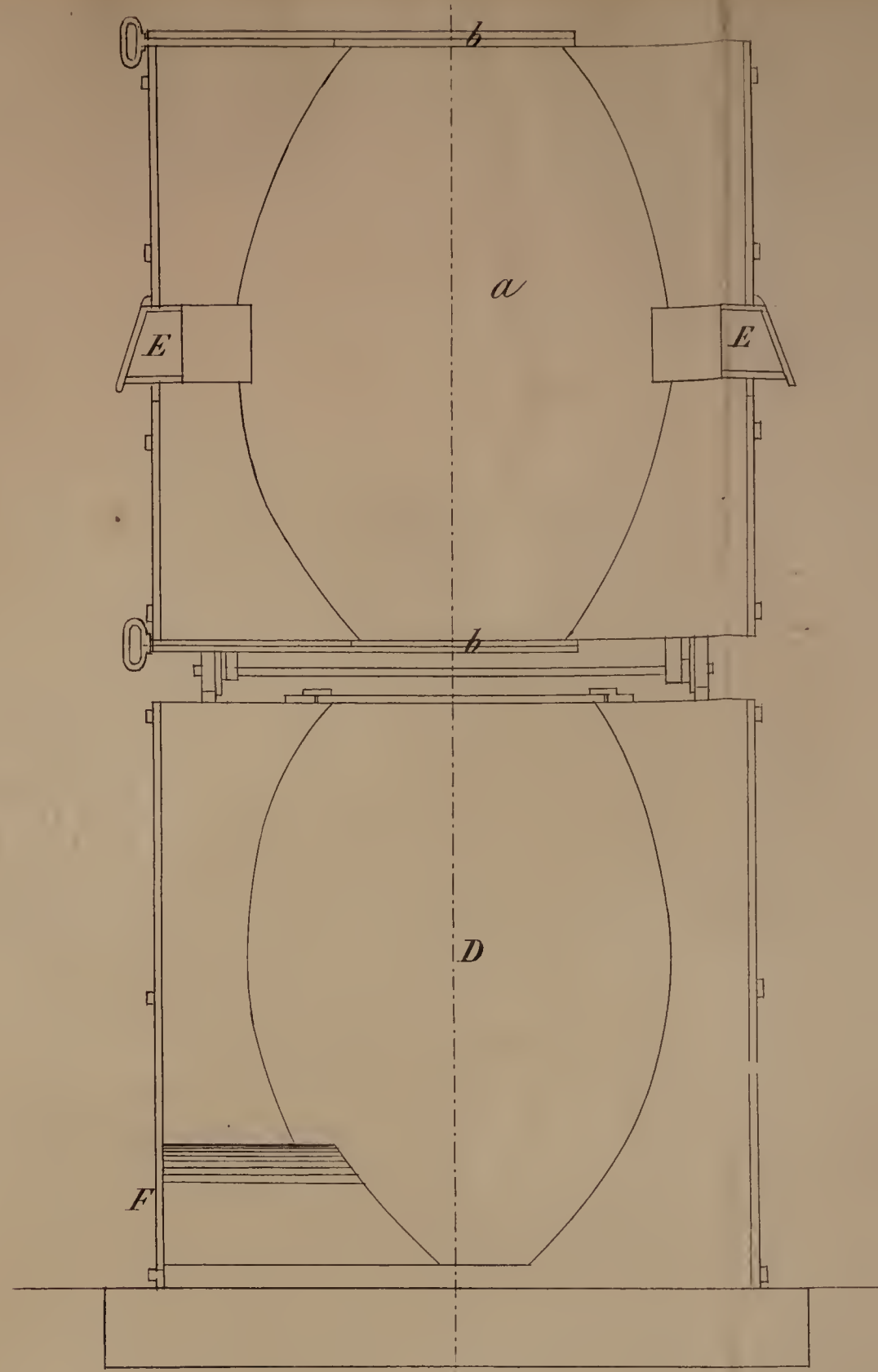


FIG. 5.

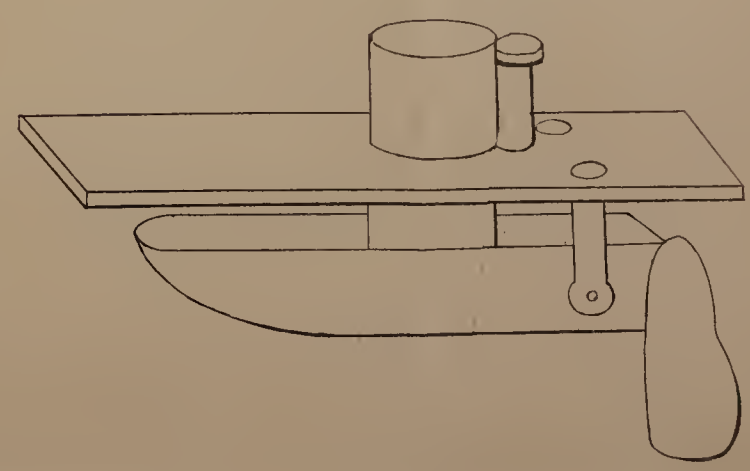
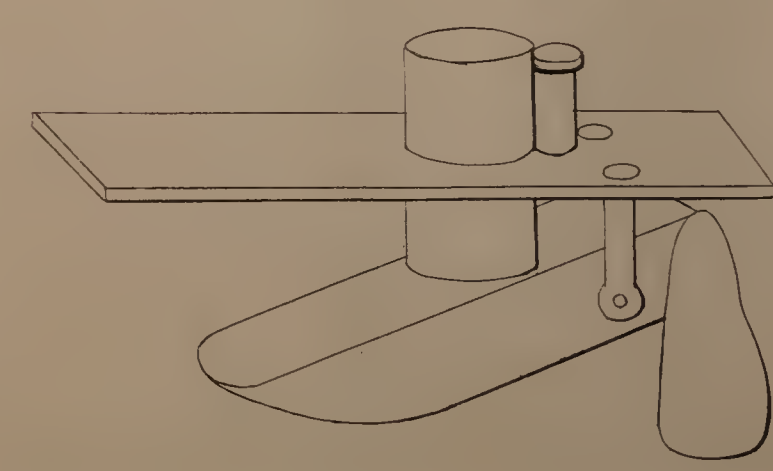


FIG. 6.



The drawing left with Provisional Specification is partly colored

Fig. 2.

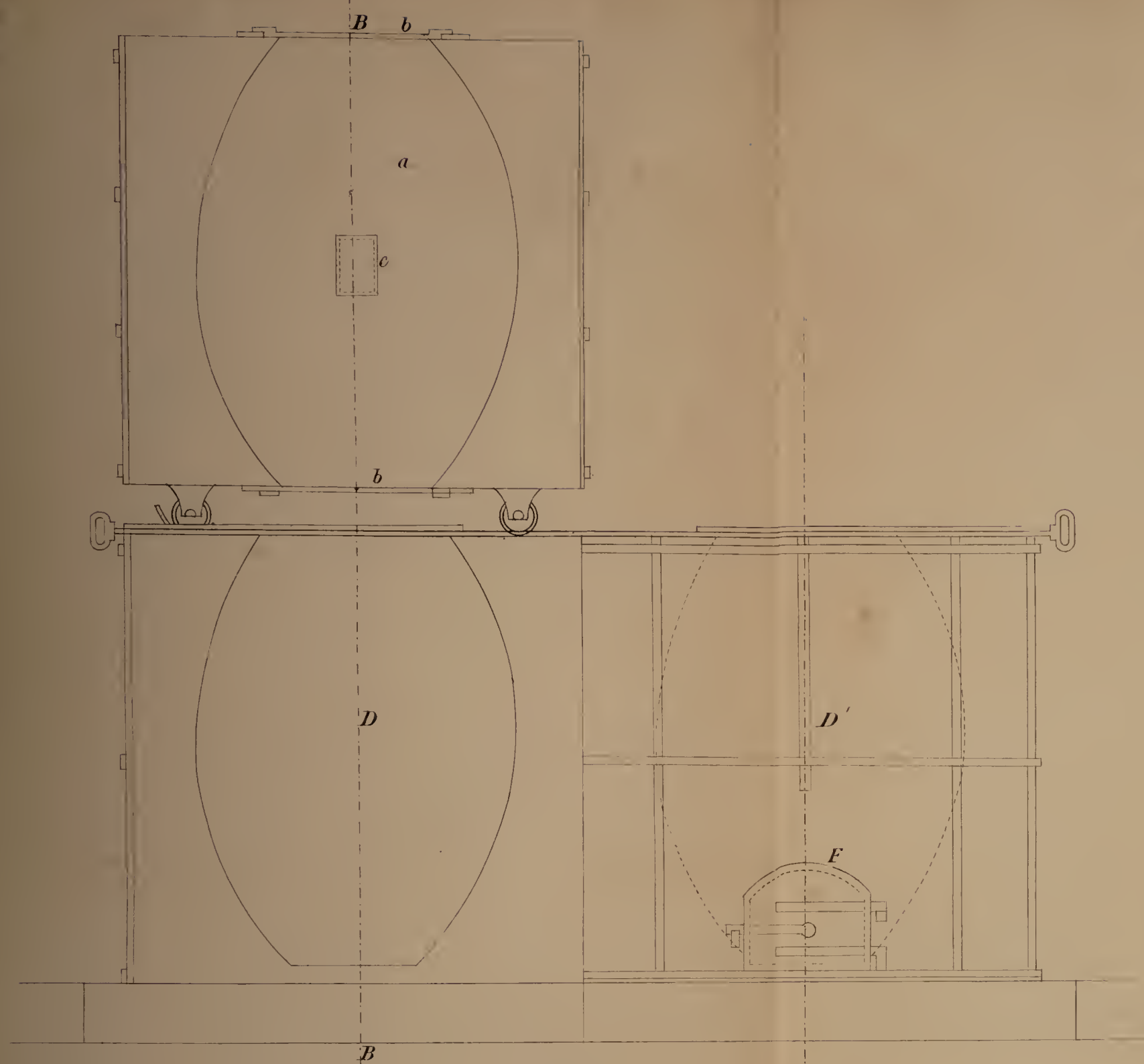


Fig. 1.

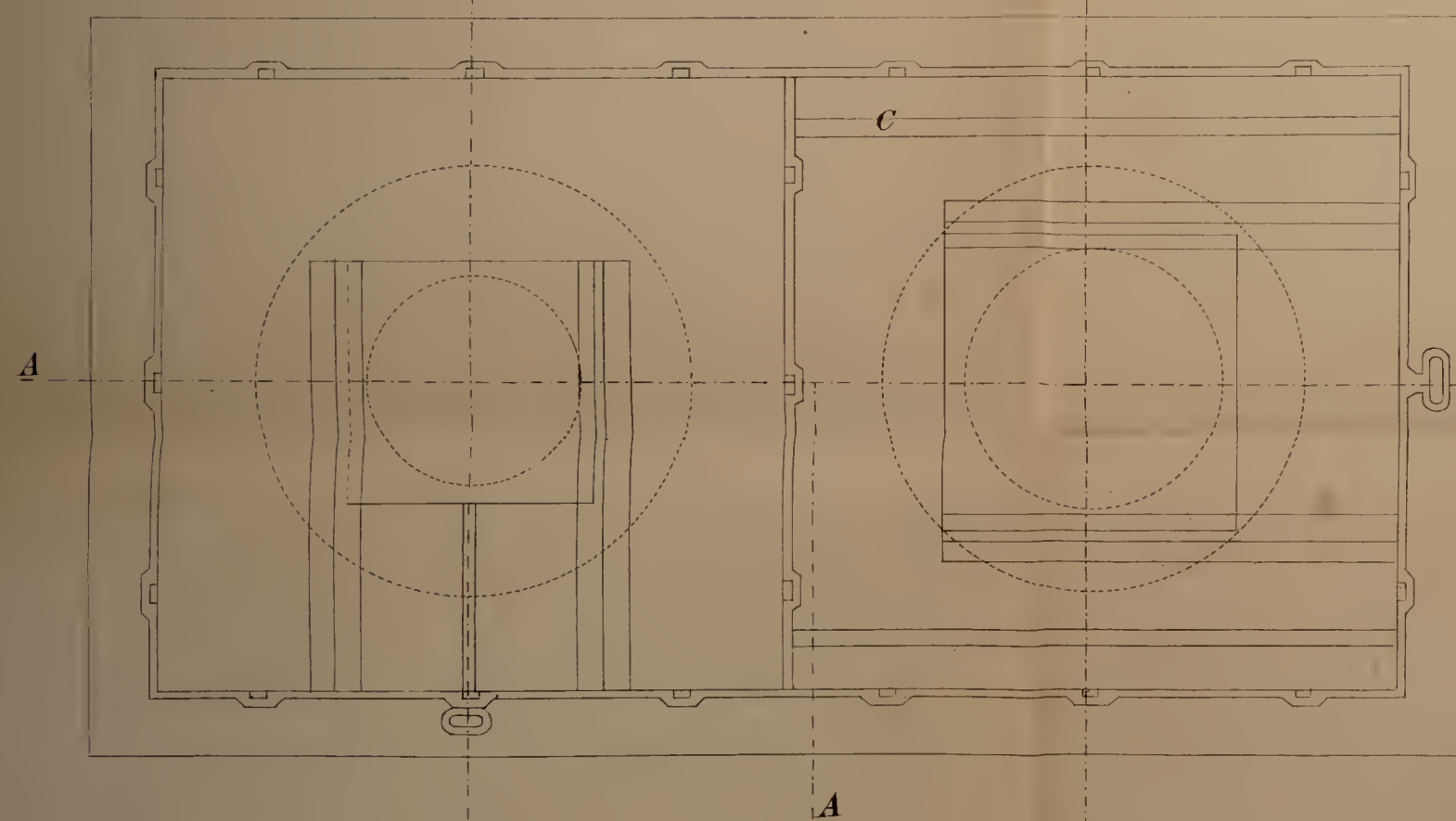


Fig. 3.

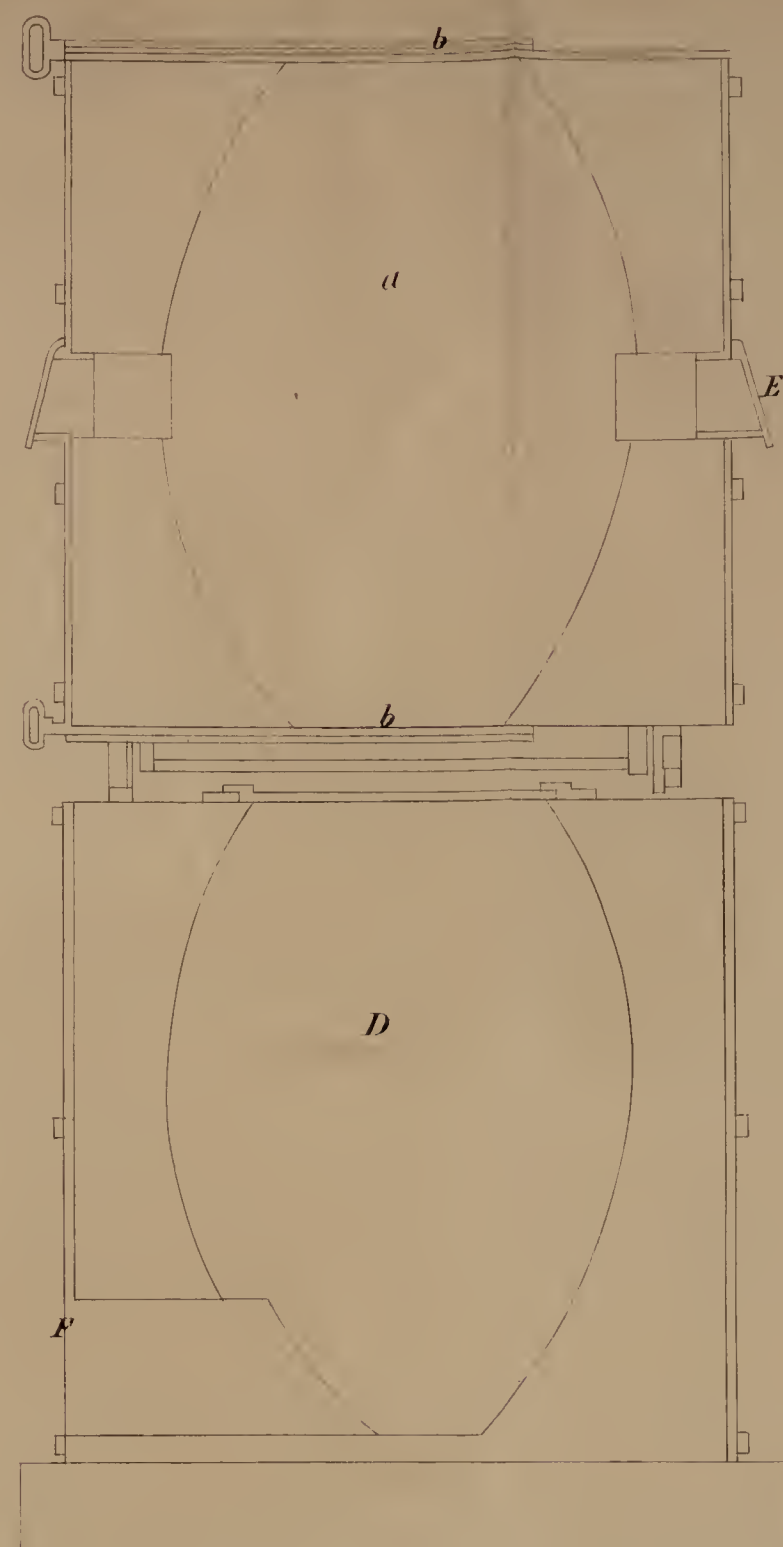


Fig. 4.

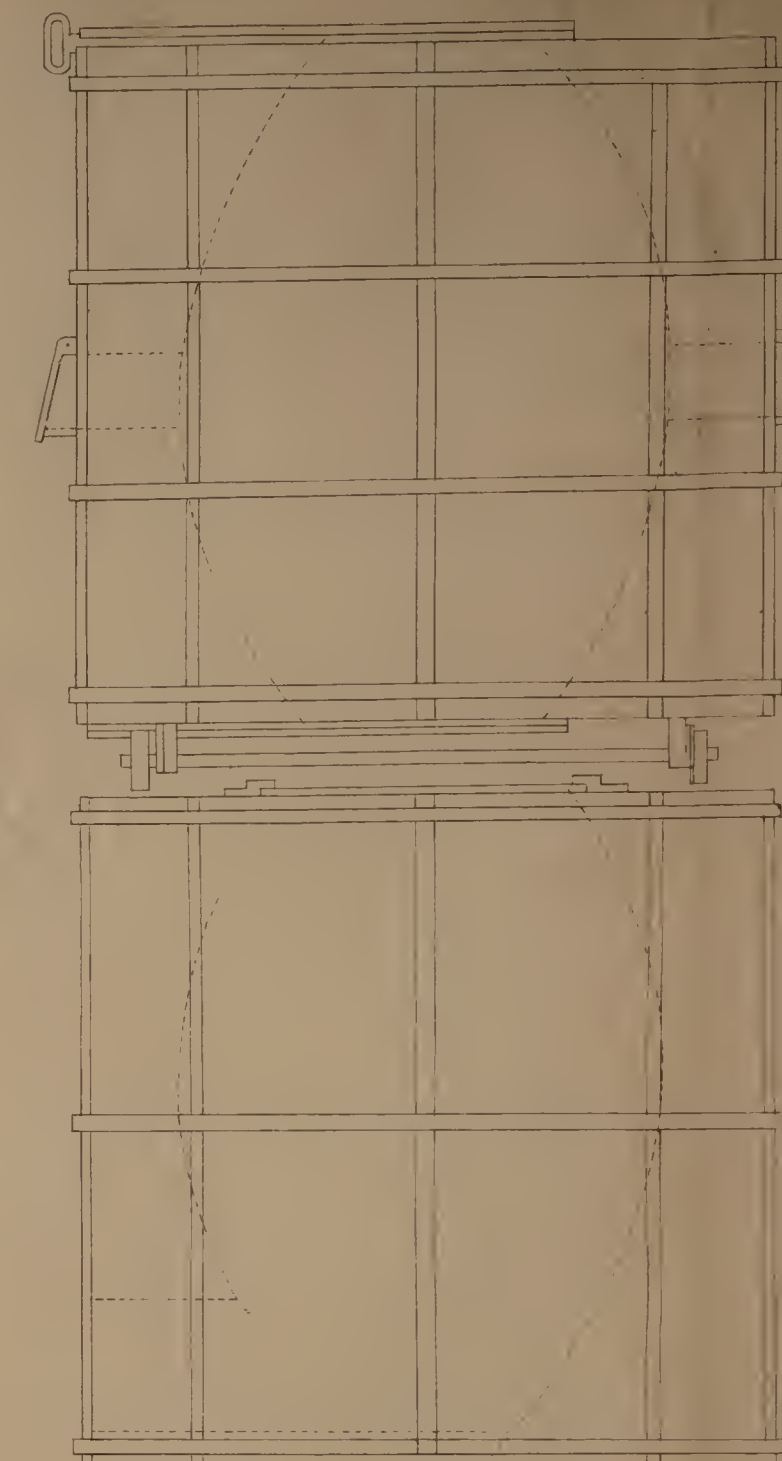


Fig. 5.

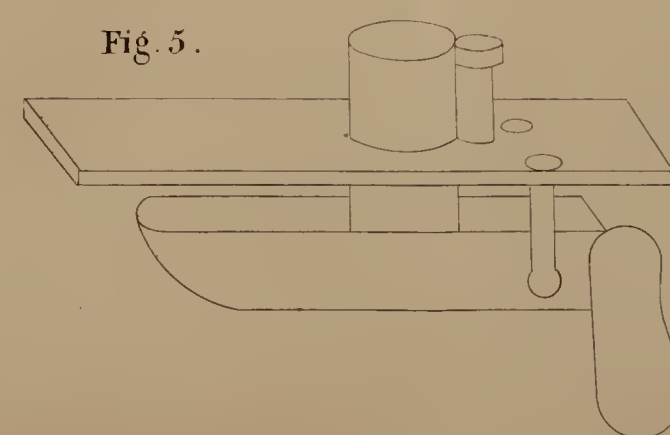


Fig. 6.

